Satellite TV *to Go*

Virtual Reality Applications Center helps an Iowa company design a tracking antenna that receives satellite TV signals for mobile applications.

VRAC researchers helped Winegard Inc. develop Movin' View, a TV satellite antenna that works even as the vehicle is on the move.

The Winegard Company of Burlington, Iowa, is one of the world's leading makers of antennas and has a reputation for being an innovator in the field. One of the company's newest products is a prime example. The Movin' View is a domed antenna for digital satellite TV, but one with a special capability. Mounted on the roof of recreational and other vehicles, the system rotates and tilts the antenna dish to keep it positioned to receive the strongest signal possible even as the vehicle is in motion. Winegard designed the product with assistance from IPRT's Virtual Reality Applications Center, which has expertise in control systems design and simulation.

The patented Movin' View works using a motorized tracking system, precision gyroscopes, levels and a global positioning system, or GPS. It tracks at a speed greater than 30 degrees per second and provides unlimited turning to eliminate cable-wrap problems. The system requires no user input to operate. The antenna, electronics and mechanism all are protected with a compact, aerodynamic plastic dome. It rides on the roof of vans, motor homes, campers and other recreational vehicles. Movin' View also comes in an "in-place" version that automatically acquires satellite signals while the vehicle is parked.

Like a Robot

Designing a complex system like the Movin' View and ensuring that it performs optimally under most conditions is a daunting task. "This was kind of a new area for us, so one way to help establish some expertise was to come to places like Iowa State University," said Gene Rodeffer, vice president of engineering at Winegard.

The company teamed with Greg Luecke, a VRAC associate and an associate professor of mechanical engineering at ISU. "We worked on the theoretical issues, and they did the programming and implementation," said Luecke.

Luecke is an expert in control systems and robotics, which is exactly what Winegard needed, according to Rodeffer. "Greg's expertise in robotics is very similar to the type of work we're doing," he said. Luecke agreed. "The antenna is really a specialized type of robot," he said.

The project took over two years, resulting in a product that the company sells both as original equipment to recreational vehicle manufacturers as well as an after-market product directly to consumers. The product has been on the market just under one year.

Do What They Say

Rodeffer said he has been pleased with the assistance provided by VRAC. "Greg's work has been very good. We find him and Iowa State easy to work with. They do what they say they will do," he said.

Luecke and VRAC have also worked on another project with Winegard to motorize a conventional antenna. And, the relationship is continuing, as the team is working on a marine version of the Movin' View product.